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(71) Applicant *(for all designated States except US)*: **ELECTROLUX HOME PRODUCTS PTY LIMITED** [AU/AU]; 163 O'Riordan Street, Mascot, New South Wales 2020 (AU).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **GENG, David** [CN/AU]; C/- Electrolux Home Products Pty Limited, 9 Edward Street, CNR Churchill Street, Orange, New South Wales 2800 (AU).

(74) Agents: **BORG, Keith, Joseph** et al.; Halfords IP, 1 Market Street, Sydney, New South Wales 2000 (AU).

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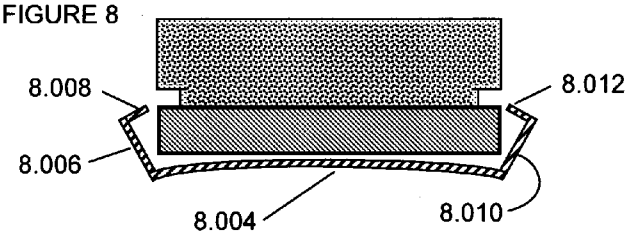
(54) **Title**: A CHANGEABLE PANEL ASSEMBLY AND METHOD OF ASSEMBLING A CHANGEABLE PANEL

FIGURE 8



(57) **Abstract**: A panel attachment arrangement for attaching a panel 3.003 to a support 7.066 having a pair of opposite sides each opposite side having an engagement lip 7.078 which, in use, are on the opposite face of the support to the panel, the panel attachment arrangement including: a pair of first projections 3.005 adapted to receive a pair of opposite sides of a support; each projection including an inward transverse second projection 3.007 adapted to seat behind or in a corresponding one of the recesses in the support, wherein one or more of (a) the panel, (b) the first projections, or (c) the second projections are flexible or resilient, whereby the second projections can be resiliently splayed or flexed beyond the opposite sides of the support to engage the corresponding lip when the flexing force is removed.

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A CHANGEABLE PANEL ASSEMBLY AND METHOD OF ASSEMBLING A CHANGEABLE PANEL

Field of the invention

[001] This invention relates to a panel assembly, and a method of assembling a panel.

[002] The invention is particularly suited for panels for use on household appliances such as refrigerators, but can be used generally to attach panels.

Background of the invention

[003] Consumers increasingly require flexibility in designing kitchens, and the refrigerator can be a major feature of the kitchen.

[004] Accordingly, the present invention provides a panel arrangement which is readily assembled in the factory. Further, in some embodiments, the invention provides a panel arrangement which can be changed *in situ*. The panel can be decorative.

Summary of the invention

[005] According to an embodiment of the invention, there is provided a panel attachment arrangement for attaching a panel to a support having a pair of opposite sides each opposite side having an engagement lip which, in use, are on the opposite face of the support to the panel, the panel attachment arrangement including:

a pair of first projections adapted to receive a pair of opposite sides of a support;

each projection including an inward transverse second projection adapted to seat behind or in a corresponding one of the recesses in the support, wherein one or more of (a) the panel, (b) the first projections, or (c) the second projections are flexible or resilient, whereby the second projections can be resiliently splayed or flexed beyond the opposite sides of the support to engage the corresponding lip when the flexing force is removed.

[006] The panel can be formed integrally with the first and second pairs of projections.

[007] The invention also provides a panel attachment member adapted to attach a panel to a support having a pair of opposite sides each opposite side having an engagement lip which, in use, are on the opposite face of the support to the panel,

the attachment member being a longitudinal member having:

a first elongate strip;

a second elongate transverse strip projection from an edge of the first strip; and

a third elongate strip transverse to the second strip;

the first, second, and third strips forming a channel; wherein

at least one of (a) the panel, (b) the second strip, or (c) the third strip is sufficiently flexible to permit the third strips to be flexed or resiliently splayed beyond the opposite sides of the support to enable the third strip to engage the corresponding lip when the flexing force is removed.

[008] A pair of panel attachment members can be affixed to opposite sides of a panel, the third strips of each attachment member facing inward from the edge of the panel.

[009] The panel can be made from a material selected from metal, glass, acrylic, polymeric material, laminates, or composite materials.

[010] The attachment members can be attached to the panel by adhesive.

[011] The arrangement can include supplementary attachment means to attach the panel to the support.

[012] The supplementary attachment means can include double-sided adhesive tape.

[013] The supplementary attachment means can include a hook and loop (Velcro) attachment means having a first patch attached to the panel, and a complementary second patch attached to the support.

[014] At least one of the patches can be contained in a recess to reduce the spacing between the panel and the support.

[015] The invention further provides a panel support including a substantially planar surface and a pair of opposed lips adapted to engage with the inward projections of the panel arrangement.

[016] The method further provides a method of attaching a panel arrangement including the steps of resiliently splaying the inward projections of the panel attachment arrangement and engaging the inward projections with corresponding lips of the support.

Brief description of the drawings

[017] An embodiment or embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

[018] Figure 1 is an end view of a panel according to a first embodiment of the invention.

[019] Figure 2 shows a view of the panel of Figure 1.

[020] Figure 3 is an end view of a panel arrangement according to a second embodiment of the invention.

[021] Figure 4 illustrates the attachment members of the arrangement of Figure 3.

[022] Figure 5 illustrates a panel adapted for use with the arrangement of Figure 3.

[023] Figure 6 is an illustration of a shell of a wall or door to which a panel arrangement according to embodiments of the invention can be attached.

[024] Figure 7 is a schematic illustration of an end view of a panel according to an embodiment of the invention juxtaposed with a door.

[025] Figure 8 illustrates a step I the process of applying the panel to the door of Figure 7.

[026] Figure 9 illustrates the panel attached to the door.

[027] Figure 10 schematically illustrates an alternative means of attaching a panel to a support.

[028] Figure 11 is a schematic illustration of a panel with supplementary attachment means.

[029] Figure 12 shows a detailed sectional view of supplementary attachment means.

[030] Figure 13 illustrates an alternative means of attaching a panel.

[031] Figure 14 illustrates a modification to the door frame.

[032] Figure 15 is a section view of a handle attachment block assembly.

[033] Figure 16 shows a panel preparatory to attaching to a refrigerator door.

[034] The numbering convention used in the drawings is that the digits in front of the full stop indicate the drawing number, and the digits after the full stop are the element reference numbers. Where possible, the same element reference number is used in different drawings to indicate corresponding elements. In some cases, where repeat or mirror image features are included in a drawing, only one number will be allocated to such repetitious features for the sake of clarity.

[035] It is understood that, unless indicated otherwise, the drawings are intended to be illustrative rather than exact representations, and are not necessarily drawn to scale. The orientation of the drawings is chosen to illustrate the features of the objects shown, and does not necessarily represent the orientation of the objects in use.

Detailed description of the embodiment or embodiments

[036] The invention will be described with reference to the embodiments in the drawings.

[037] Figure 1 is an end view of a panel 1.004 with integral attachment means 1.006, 1.008, 1.010, 1.012 according to a first embodiment of the invention.

[038] The panel 1.004 is a substantially planar rectangular panel and has attachment projection 1.006, 1.008, 1.010, 1,012 projecting from opposite edges. The attachment projections of Figure 1 include first projections 1.006, 1.010 which are transverse to panel 1.004. Preferably the projections 1.006, 1.010 are over bent to produce a stronger attachment force. For example, the projections can be inwardly inclined to the perpendicular to the panel. Preferably the projections are inclined at between about 2° to 4°. The ends of projections 1.006, 1.010 are folded inwards to form a second set of projections 1.008, 1.012 transverse to the first set of projections 1.006, 1.010. Preferably the second projections can also be inclined to the perpendicular to the first projections, and are approximately parallel with the plane 1.004.

[039] The same material can be used for the panel and the attachment projections, so it can be formed, for example, in a pressing or forming operation. For example, the panel can be of metal or plastics.

[040] As will be discussed. with reference to Figures 7 to 9, preferably, at least one of the panel 1.004, the first projections 1.006, 1.010, or the second projections 1.008, 1.012 are sufficiently flexible to permit the second projections to be flexibly splayed or flexed outwardly to permit the second projections to engage

behind or in a groove in a support. The representations are not to scale. In one embodiment, the first projections can be of the order of 72 mm and the second projections can be of the order of 37 mm. However, the second projections can be of the order of 20 mm or less in width, while in another embodiment they can be in the range of around 3 to 4 mm wide up to 10 to 12 mm wide.

[041] The top and bottom edges of the panel and the first projections can be folded inwards. The inward folds can mate with a groove in a cover to close the assembly for foaming.

[042] Figure 2 is an underside view of the panel of Figure 1. The panel 2.004 is rectangular in shape, and the opposite long sides each have the attachment projections formed therealong. The over-bending of the projections provides sufficient attachment force to hold the panel in place when it is attached, for example, as shown in Figures 7 to 10.

[043] Alternatively, or additionally, a number of fixing holes or screw holes can be formed in the inward projections 2.008.

[044] As can be seen in Figure 2, the inward projection 2.008 has cut-out portions such as 2.014. The opposite projection 2.012 can be a mirror image of projection 2.008. In an alternative arrangement, the cut-out portions can be on one side only. The top and bottom edges of the panel 2.004 can be folded inwards.

[045] The panel support in the embodiment of Figures 7 to 9 is a door for a refrigerator having a metal frame 6.060 as shown in Figure 6. The frame has a box construction having a closed end 6.062, side walls such as 6.066, the ends of which are folded inwards as shown, for example, at 6.069 around the periphery of an open end opposed to the close end 6.062. Thus the frame forms a cavity which can be filled with, for example, foamed insulating material. The top of the frame 6.064 has been shaded to assist in eliminating visual ambiguity, and to assist in identifying the orientation of the frame in following figures.

[046] Optionally, attachment holes, such as screw holes, can be formed in the closed surface 6.062 to align with corresponding attachment holes in the panel arrangement. Apertures 6.067 can also be formed in the surface 6.062 for attachment of the handle attachment bases.

[047] Figure 7 shows a schematic top view of a panel arrangement 7.002 according to the embodiment of the invention illustrated in Figures 1 & 2, and a panel support 7.072, which, in this case is an insulated door of a refrigerator having a frame

such as 6.060 illustrated in Figure 6. The front panel of the door 7.062 and side wall 7.066 are indicated to provide reference points with the frame of Figure 6.

[048] The door 7.072 has been filled with an insulating material which, in this example, is shiny skin insulation, such as foamed insulation in which the rapid cooling of the outer skin 7.074 of the insulation causes it to form a more coherent structure than the inner insulating material 7.076. Suitable insulating materials, preferably those which form a skin, such as polyurethane foam or polyurethane combined with Vacuum insulation panel, and are suitable for use with storage of food items, can be used. A pair of longitudinal recesses, such as 7.078 are formed in the insulation, one on each side of the door, so that the peripheral frame 6.069 is exposed for use in attaching the panel 7.002 via the attachment projections 7.008, 7.012. The foamed insulation also fills the cavity of the door frame 7.060.

[049] The projections 7.006, 7.010 are spaced apart sufficiently to contain the panel in a close or slightly resilient fit. However, as can be seen in Figure 7, the distance between the ends of inward panel attachment projections 7.007, 7.012 is smaller than the width of the frame 7.060. However, the panel arrangement 7.002 is made of a unitary material which is flexible. Thus, as illustrated in Figure 8, the panel can be flexed to splay the inward attachment projections 8.006, 8.010 outward, so the ends of the inward projections 8.008, 8.012 are spaced apart by a distance greater than the width of the door frame 8.060. The panel can thus be located so the frame is within the panel. This permits the inward projections to be released so that they relax back into the recesses 9.078 as shown in Figure 9.

[050] Alternatively, as shown in Figure 10, one end of the panel arrangement can be applied to the door so the inward projection 10.008 is located in its corresponding recess, and the panel can be flexed so the other inward projection 10.012 can be located in its corresponding recess 10.078.

[051] Figures 3, 4, 5, & 13 illustrate an alternative panel arrangement according to an embodiment of the invention. Figure 3 is an end view of the panel arrangement, Figure 4 is an underside view of the attachment channels 4.040, 4.042 , and Figure 5 is a view of the panel 5.003. In this embodiment, the panel arrangement includes separate panel 3.003 and side attachment channels 4.040 & 4.042. The side channels include an attachment strip 3.009, a first transverse projection, 3.005, and a second, inward projection 3.007 presenting a substantially "J" shaped section. the panel can be of any suitable material, for example acrylic or metal. The channels can be attached to the panel by any suitable means.

[052] In one embodiment, the channels are attached to the panel by adhesive. The adhesive should be durable, expected life time 20 years, due to the average lifespan of refrigerator. It should have a temperature resistance from -15°C to 65°C, which may happen during transportation.

[053] The side attachment members and panel can be loaded into a jig and clamped together for at least a minimum time to allow the adhesive to bond to the materials. When using 3M VHB 5652, the components should be clamped for a minimum of one minute with a clamp pressure of 100 KPa.

[054] The adhesive should be have good water & chemical agent resistance, which may be experienced during cleaning. The adhesive should have fast cure, and achieve bonding strength within 15 minutes to increase productivity. Preferably the adhesive should be odourless or low odour. Irritating odour is harmful to operator therefore require investment on ventilation system.

[055] The adhesive can be double sided adhesive tape, for example, 3M VHB 5652 or 3M VHB 5952 , but alternatives such as Loctite 5590, Loctite 5610can be used.

[056] Different types of adhesive can be used in different locations. For example, with an acrylic panel, the vertical edges can have a strip of 3M VHB5652 or 3Mm VHB5952 of about 11 mm width applied along the sides. Similar adhesive can be used for the door handle apertures. The top and bottom of the panel can have 3M VHB4920 applied in as trip of about 11 mm width.

[057] 3M VHB5652 or 3Mm VHB5952 can be used for permanent joints. VHB4920 permits the join to be re-opened if required.

[058] The panel can be made of different material from the attachment channels.

[059] In one implementation, the panel can be flexible, so the panel arrangement can be applied in a similar manner to the arrangement of Figures 1 &2.

[060] However, in an alternative embodiment, for example where the panel is of glass and the channels are of stainless steel, the panel may be insufficiently flexible to permit the attachment projections to be resiliently splayed to a sufficient amount to pass outside the edges of the door frame. Figure 13 illustrates an embodiment in which the panel 13.003 is insufficiently flexible to enable the inward ends of the projection 13.007 to clear the sides of the door frame. in this case, the projection 13.005, can provide the required flexibility. In this case, the attachment

projections such as 3.005 can be sufficiently flexible to permit the inward projections to pass around the frame and be located in the corresponding recesses such as 7.078.

[061] The method of attaching the panel arrangement illustrated in Figure 10 is also suitable for use with this embodiment.

[062] Also shown in Figure 4 are door handle attachment slots 4.044, 4.046, 4.048. These slots can be used in conjunction with a handle attachment arrangement such as that described in copending Australian patent application AU2008216999 by AB Electrolux, the contents of which are hereby incorporated by reference.

[063] Figures 11 & 12 illustrate an optional supplementary attachment arrangement, in this example using 3M Dual Lock SJ-4570, or Velcro™. While the long sides of the panel 11.004 are attached via the attachment channels, the top and bottom edges of the panel are not attached to the door frame by the main attachment means. Thus, the arrangement of Figures 11 & 12 provides supplemental attachment means 11.112, 11.114, 11.116, 11.118, 11.120, 11.124, and central supplemental attachment 11.126. Figure 12 is an expanded section view along the line AA in Figure 11. The fascia panel 12.004 has s first attachment element, in this case Velcro patch 12.116 attached to the panel. A corresponding complementary attachment element, Velcro patch 12.132 is attached to the frame 12.060. In this case, to ensure that the fascia is close to the surface 12.062 one or both Velcro patches can be installed in recesses. In this example, the Velcro patch 12.132 is contained in recessed pocket 12.130 which is attached to the frame 12 .060. A gap filler 12.134 can be applied along the edges between the fascia 12.004 and the frame 12.060. The gap filler can be 0.5 mm rubber strip or tape.

[064] A display, touch panel, or control panel aperture 11.128 can be provided in both the fascia to align with a corresponding aperture in the door frame.

[065] Figure 14 illustrates a modification of the door frame 12.060. The inwardly turned edges 14.069 can be inclined out of the plane of the back surface of the frame so that, when the panel arrangement is attached, the inward projections such as 1.008, 1.012 are maintained in contact with the angled edges 12.069 with a resilient force.

[066] Figure 15 is a section view of a handle attachment block assembly. The mounting block bases, such as 15.140, are mounted through corresponding first slots in the door frame surface 15.062. The mounting block base is attached to the door frame before the door is filled with foam insulation. The panel 15.004 has

corresponding slots (see Figure 5) through which the mounting block passes when the panel is attached to the frame. The handle 15.148 is attached to a mounting pedestal 15.142 by a screw attachment 15.144, and register pin and socket 15.146. The pedestal is a snap-fit on the projecting base 15.140.

[067] The projections 1.008 and 1.012 can be continuous or intermittently located in discrete locations along the length of the first projections 1.006 and 1.010.

[068] A shown in Figure 16, the panel 16.003 can be attached to the door assembly on the refrigerator. The attachment projections such as 16.005, 16.007 can engage the corresponding grooves 16.078 on either side of the door assembly as described above.

[069] When the panel arrangement is assembled in the factory, the base attachments for the handles and the display and associated wiring can be placed in location before the assembly is filled with foamed insulation. The base attachments for the handle are inserted through the cut-outs in the frame before the foamed insulation is applied. Similarly, where a display or control panel is to be attached to the door, the electronic equipment and wiring can be attached before the foam insulation is applied. The panel arrangement can be attached to the door frame and the attachment channels can be attached to the frame, by, for example, the clamping force of the over-bent projections, or screws, after the assembly is filled with foamed insulation. .

[070] In this specification, reference to a document, disclosure, or other publication or use is not an admission that the document, disclosure, publication or use forms part of the common general knowledge of the skilled worker in the field of this invention at the priority date of this specification, unless otherwise stated.

[071] In this specification, terms indicating orientation or direction, such as "up", "down", "vertical", "horizontal", "left", "right" "upright", "transverse" etc. are not intended to be absolute terms unless the context requires or indicates otherwise. These terms will normally refer to orientations shown in the drawings.

[072] Where ever it is used, the word "comprising" is to be understood in its "open" sense, that is, in the sense of "including", and thus not limited to its "closed" sense, that is the sense of "consisting only of". A corresponding meaning is to be attributed to the corresponding words "comprise", "comprised" and "comprises" where they appear.

[073] It will be understood that the invention disclosed and defined herein extends to all alternative combinations of two or more of the individual features mentioned or evident from the text. All of these different combinations constitute various alternative aspects of the invention.

[074] While particular embodiments of this invention have been described, it will be evident to those skilled in the art that the present invention may be embodied in other specific forms without departing from the essential characteristics thereof. The present embodiments and examples are therefore to be considered in all respects as illustrative and not restrictive, and all modifications which would be obvious to those skilled in the art are therefore intended to be embraced therein.

Claims

1. A panel attachment arrangement for attaching a panel (1.004, 3.003) to a support (7.060) having a pair of opposite sides each opposite side having an engagement lip (7.078) which, in use, are on the opposite face of the support to the panel, the panel attachment arrangement including:

a pair of first projections (1.006, 1.010) adapted to receive a pair of opposite sides of a support (7.060);

each projection including an inward transverse second projection (1.008, 1,012) adapted to seat behind or in a corresponding one of the recesses in the support, characterized in that

one or more of (a) the panel, (b) the first projections, or (c) the second projections are flexible or resilient, whereby the second projections can be resiliently splayed or flexed beyond the opposite sides of the support to engage the corresponding lip when the flexing force is removed.

2. A panel attachment arrangement as claimed in claim 1, wherein the panel (1.004) is formed integrally with the first and second pairs of projections.

3. A panel attachment as claimed in claim 1 or claim 2, characterized in that the projections are over-bent to the perpendicular to provide a clamping force in use

4. A panel attachment member (4.040) adapted to attach a panel (3.003) to a support (7.060) having a pair of opposite sides each opposite side having an engagement lip (7.078) which, in use, are on the opposite face of the support to the panel,

characterized in that

the attachment member is a longitudinal member having:

a first elongate strip (4.009);

a second elongate transverse strip (3.005) projecting from an edge of the first strip; and

a third elongate strip (3.007) transverse to the second strip;

the first, second, and third strips forming a channel; wherein

at least one of (a) the panel, (b) the second strip, or (c) the third strip is sufficiently flexible to permit the third strips to be flexed or resiliently splayed to enable the third strip to engage the corresponding lip when the flexing force is removed.

5. A panel attachment arrangement including a pair of panel attachment members as claimed in claim 4, affixed to opposite sides of a panel, the third strips of each attachment member facing inward from the edge of the panel.

6. An arrangement as claimed in claim 5, wherein the panel is made from a material selected from glass, acrylic, metal, polymeric material, composite materials , or laminates.

7. An arrangement as claimed in claim 5 or claim 6, wherein the attachment members are attached to the panel by adhesive.

8. An arrangement as claimed in any one of claims 5 to 7, including supplementary attachment means to attach the panel to the support.

9. An arrangement as claimed in claim 8, wherein the supplementary attachment means includes a hook and loop attachment means having a first patch attached to the panel, and a complementary second patch attached to the support.

10. An arrangement as claimed in claim 9, wherein at least one of the patches is contained in a recess to reduce the spacing between the panel and the support.

11. An arrangement as claimed in any one of claims 4 to 10, wherein the second strip is over-bent in relation to the first strip.

12. A panel support (7.060) including a substantially planar surface and a pair of opposed lips (7.078) adapted to engage with the inward projections of the panel arrangement.

13. A method of attaching a panel arrangement as claimed in any one of claims 1, 2, 5, 6, 7, 8, 9, 10, or 11, characterized in that the method includes the steps of resiliently splaying the inward projections (10.006, 10.012) of the panel attachment arrangement and engaging the inward projections with corresponding lips of the support (10.078).

FIGURE 1

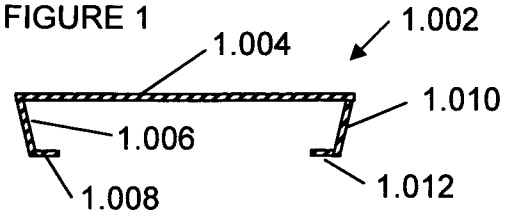
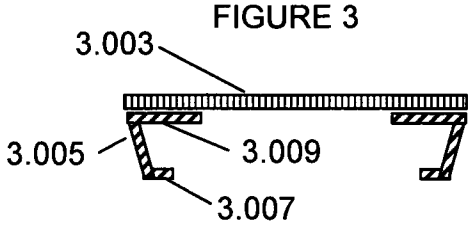


FIGURE 3



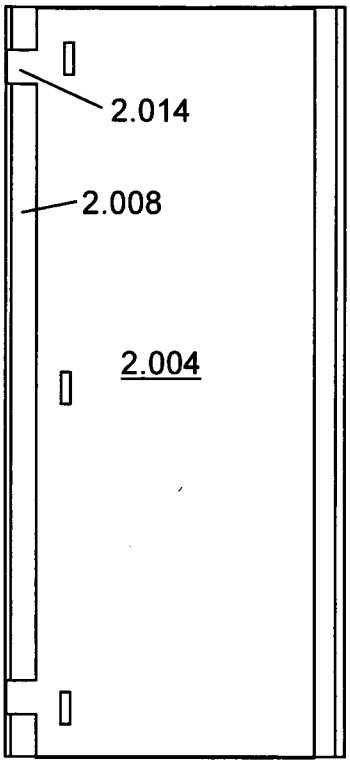


FIGURE 2

FIGURE 4

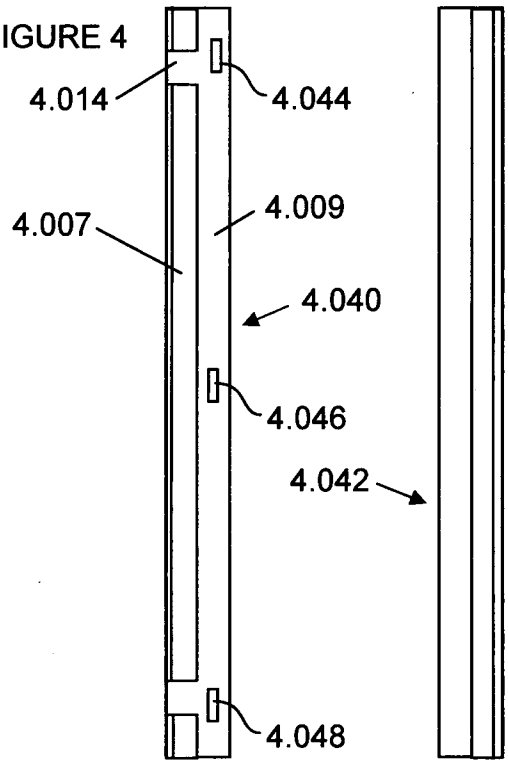


FIGURE 5

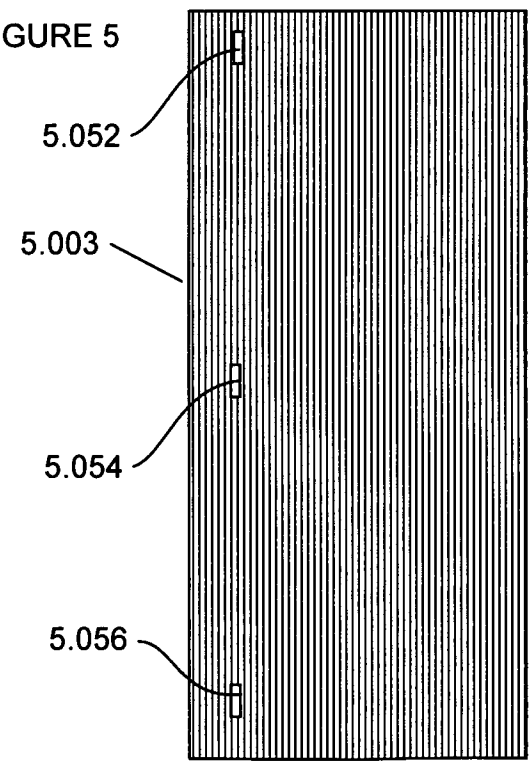


FIGURE 6

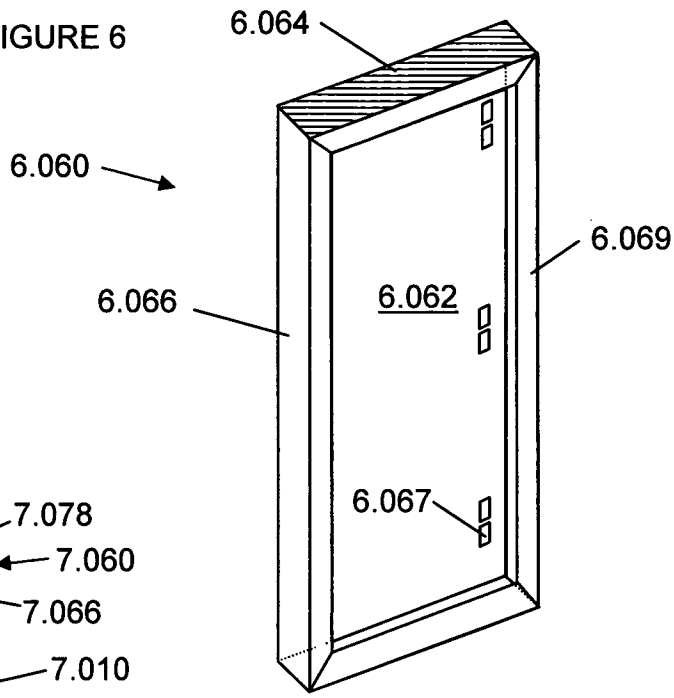


FIGURE 7

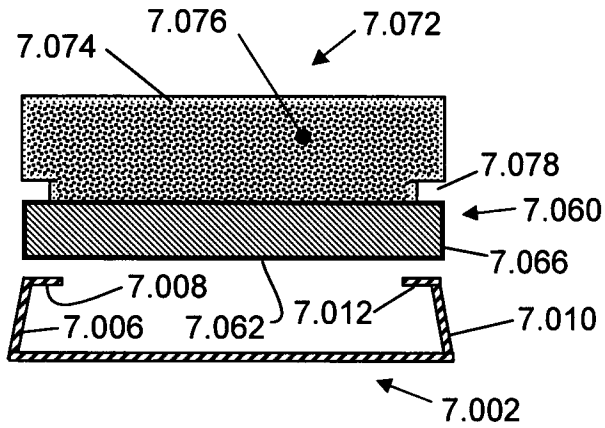


FIGURE 8

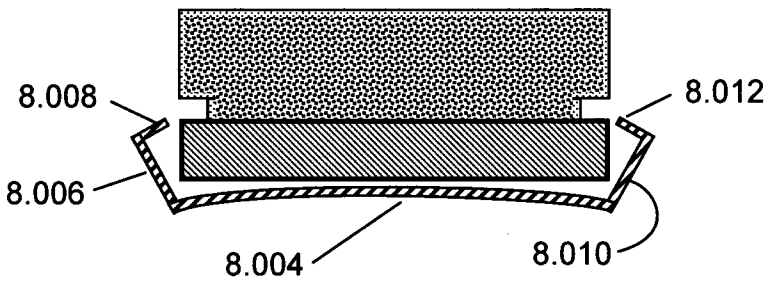
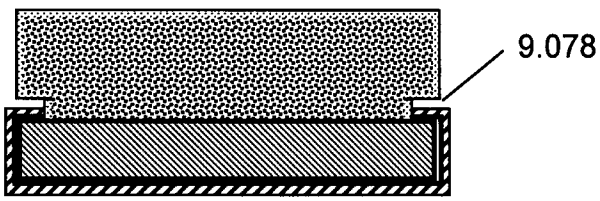


FIGURE 9



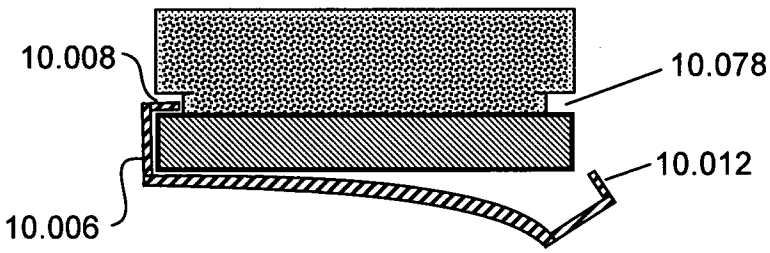
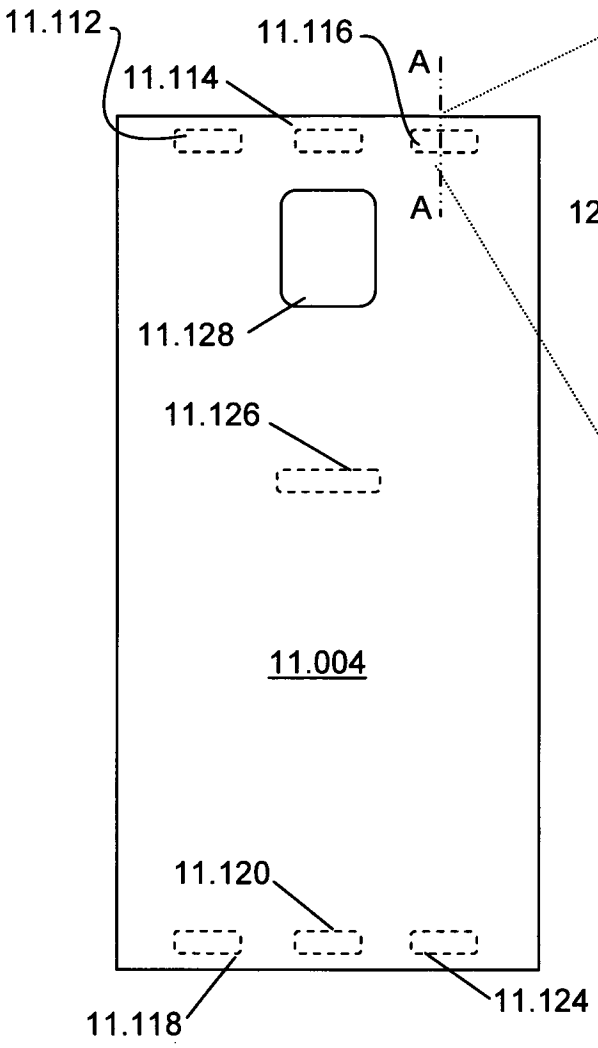


FIGURE 10

FIGURE 11



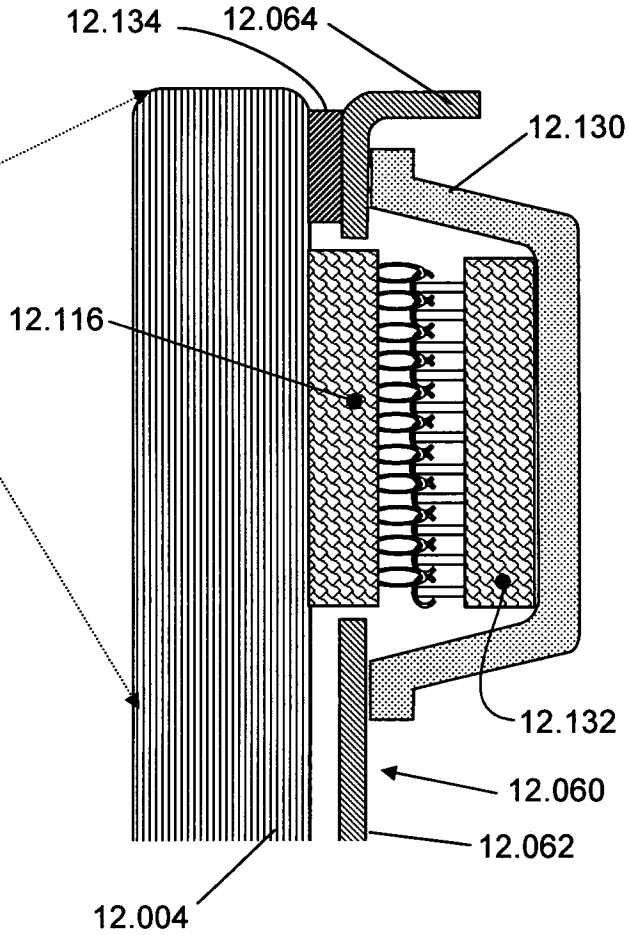


FIGURE 12

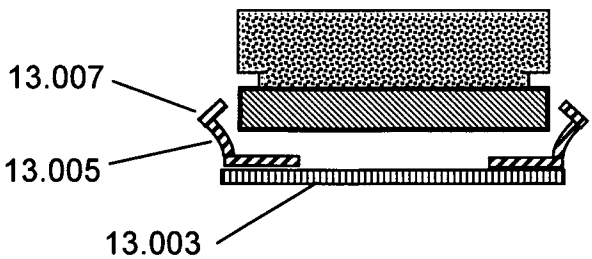


FIGURE 13

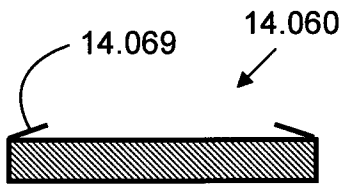


FIGURE 14

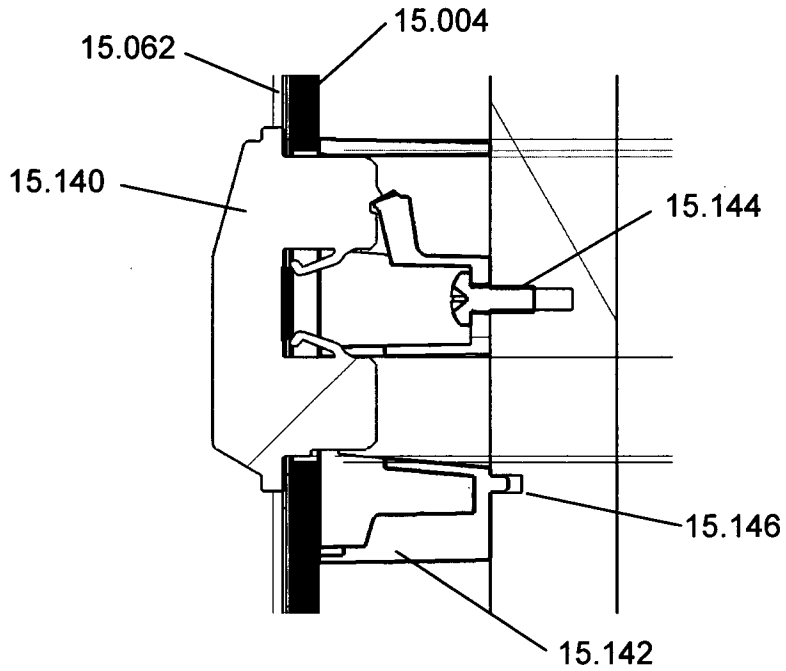
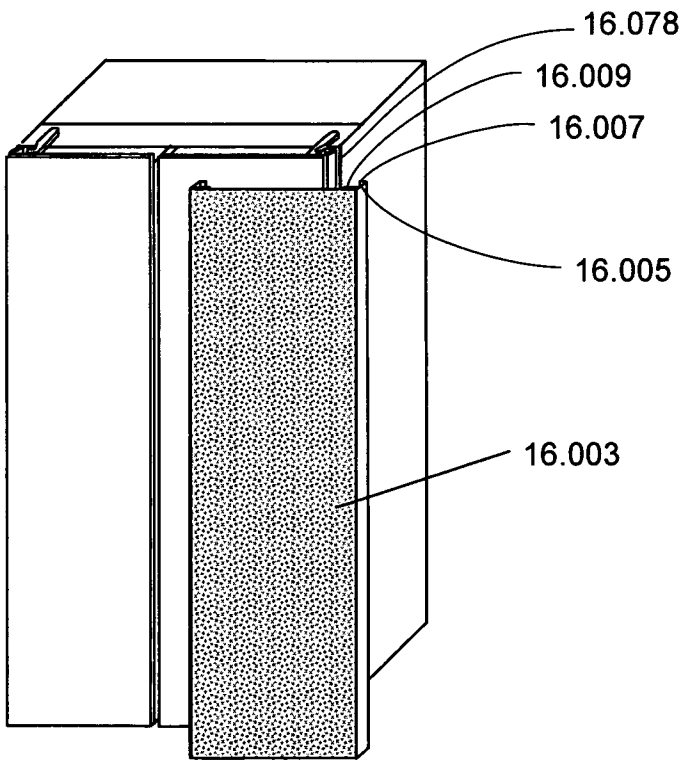


FIGURE 15

FIGURE 16



INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2010/000704

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

F16S 1/10 (2006.01) ***E04C 2/38*** (2006.01) ***F25D 23/02*** (2006.01)
B44C 5/04 (2006.01) ***F16B 2/22*** (2006.01) ***F25D 23/08*** (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPI and EPODOC ; IPC and ECLA using key words panel, plate, facia, cover, veneer, clad, decorative, aesthetic, cosmetic, texture, pattern, colour, render, changeable, alter, replace, modify switch, interchange, removable, retrofit, attach, clamp, clip, press, grip, mount, engage, snap, fix, projection, lp, jaw, flange, protrusion, tang, member, lug.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Korean Patent Abstracts KR 1020070004356 A (LG ELECTRONICS INC) 9 January 2007	
X	Abstract, figures 1 to 5	1-3, 12, 13
	US 2007/0188059 A1 (DAVIS et al) 16 August 2007	
X	Abstract, figures 2, 3, 4	4 – 8
Y	Abstract, figures 7, 8, 9	9, 10
	US 5390462 A (KREITER) 21 February 1995	
X	Abstract, figures 1, 3A, 3B, 12, 13	1-4, 11-13
	US 5353571 A (BERDAN et al) 11 October 1994	
X	Abstract, figures 2, 3, 8, 10	1-6, 8, 12, 13

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 September 2010	15 SEP 2010
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. +61 2 6283 7999	Authorized officer **Ian Hill** AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No : +61 2 6283 3145

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2010/000704

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US2005/0257436 A1 (VANDERPOL) 24 November 2005 Abstract, figure 5	9, 10
P, X	FR 2931960 A3 (FIRST INTERNATIONAL COMPUTER) 4 December 2009 ESPACENET translation, all figures	1 - 3
A	US 4732431 A (MASON) 22 March 1988	
A	SU 1483215 A1 (SEREBIN YU G) 30 May 1989. English abstract translation retrieved from EPOQUE database	
A	Korean Patent Abstracts KR 102008007231 A (JO SUNG CHUL) 01 October 2008	
A	US 5603557 A (MARKS et al) 18 February 1997	
A	US 5161343 A (EDWARDS et al) 10 November 1992	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2010/000704

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
See supplemental box 1

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☒ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

Supplemental Box 1
(To be used when the space in any of Boxes I to IV is not sufficient)

Continuation of Box No: III

This International Application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept.

In assessing whether there is more than one invention claimed, I have given consideration to those features which can be considered to potentially distinguish the claimed combination of features from the prior art. Where different claims have different distinguishing features they define different inventions.

This International Searching Authority has found that there are different inventions as follows:

- Claims 1 to 11 and 13 are directed toward a panel and its attachment methods It is considered that *"resiliently splaying the inward projections"* comprises a first distinguishing feature.

- Claims 12 is directed to a panel support. It is considered that "*a substantially planar surface and a pair of opposed lips*" comprises a second distinguishing feature.

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

Each of the abovementioned groups of claims has a different distinguishing feature and they do not share any feature which could satisfy the requirement for being a special technical feature. Because there is no common special technical feature it follows that there is no technical relationship between the identified inventions. Therefore the claims do not satisfy the requirement of unity of invention *a priori.*

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/AU2010/000704

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
KR	1020070004356	NONE					
US	2007188059	US	7770985				
US	5390462	AU	82840/91	WO	9201125		
US	5353571	BR	9202051	CA	2069188	DE	4217513
		JP	4358941	MX	9202598		
US	2005257436	NONE					
FR	2931960	NONE					
US	4732431	BR	8702621	DE	3716980	FR	2598904
		GB	2190695	JP	63023635		
SU	1483215	NONE					
KR	102008007231	NONE					
US	5603557	CA	2151661				
US	5161343	US	5239800				

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX